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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,802	04/16/2007	John David Payne	102613-112	8862
27267 7590 06/02/2010 WIGGIN AND DANA LLP ATTENTION: PATENT DOCKETING ONE CENTURY TOWER, P.O. BOX 1832 NEW HAVEN, CT 06508-1832				
EXAMINER				
KUMAR, PREETI				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
06/02/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/580,802

**Applicant(s)**

PAYNE ET AL.

**Examiner**

PREETI KUMAR

**Art Unit**

1796

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 11-24 and 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-24, 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/13/2010 has been entered.
2. Claims 1-8, 11-24, 27 are pending.
3. Claims 1, 3, 13, 15, 19, 21 and 27 are independent.

### ***Response to Amendment***

4. The objection of claims 1, 3, and 11 is withdrawn in light of Applicant's corrections.
5. The rejection of claims 1-8, 11-24, 27 under 35 U.S.C. 103(a) as being unpatentable over Payne (US 5,700,742) in view of North (US 5,352,372) is maintained.

### ***Response to Arguments***

6. Applicant's arguments filed 5/13/2010 have been fully considered but they are not persuasive. Applicant's urge that Payne et al. and North fail to disclose the use of formaldehyde condensate with urea or melamine for any purpose. Specifically Payne does not teach an aqueous composition comprising a self-crosslinkable resin and poly(hexamethylene biguanide) and a strong organic acid as recited by the instant claims and Applicants urge that the fabric treated with the PHMB is washed off and

subsequently treated with a strong organic acid and cite the examples 20 and 21. In response, although the prior art discloses the steps of removing the fabric from the aqueous solution of PHMB, with subsequent immersion in the organic acid, as stated by Applicants, arguments, the disclosure of the compositions within tables 4 and 6 cannot be overlooked and/or ignored since they most clearly guide one of ordinary skill to formulate an aqueous composition comprising 0.1%PHMB/1% melamine resin and 2% citric acid in table 6 and table 4 guides one of ordinary skill to formulate an aqueous composition comprising 0.4%PHMB/0.5% oxalic acid. Thus, one of ordinary skill can envisage a composition comprising all 3 components since Payne illustrates two aqueous compositions, namely formulation 14 in table 1, col. 7 comprising poly(hexamethylene biguanide) and a strong organic acid such as oxalic acid. And formulation P, col.10, table 6, comprising melamine and poly(hexamethylene biguanide).

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, one of ordinary skill in the art would have been motivated to combine Payne with North since both references teach the analogous art of textile resins that prevent yellowing of the treated fabric. North teaches one of ordinary skill to reduce yellowing and increase whiteness of fabrics with 2 to 40% by weight of the DMDHEU (which percentage range is encompassed by the claimed limitations). See col.2,ln.30-40. It would have been obvious, to one of ordinary skill in the art, to arrive at the claimed 2-20% self crosslinkable resin since the Payne exemplifies 1% melamine resins in general and North teaches the beneficial utility of

greater than 2% resins to significantly reduce or eliminate free formaldehydes while providing a non-yellowing treated fabric.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. Claims 1-8, 11-24, 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne (US 5,700,742) in view of North (US 5,352,372).

Payne teaches antimicrobial treatment of textile material with poly(hexamethylene biguanide) and a strong organic acid to protect against yellowing and loss of antimicrobial activity. See abstract.

Regarding the claimed 0.25 to 20 wt% of at least a catalyst; Payne teaches 0.5% oxalic acid and 0.1% poly(hexamethylene biguanide) in example 20 of table 4 in col.8. Regarding claim 27 which excludes the oxalic acid catalyst, Payne teach one of ordinary skill that the strong organic acid is also preferably applied from aqueous

solution either in the form of the free carboxylic acid or in the form of a water-soluble salt, especially alkali metal salt such as lithium, sodium or potassium salt or as an ammonium salt. See col.6,ln.27.

Regarding the claimed 0.1 to 4 wt% of at least an antimicrobial active agent, reactive with the resin, Payne teaches 0.01 up to 2% biguanide may be sufficient to confer an antimicrobial effect to the material. See col.6,ln.30-35.

Regarding the claimed noncellulose fibers, Payne teaches in col.5,ln.50-55, the treatment of textile material include polyester, polyamide or polyurethane.

Regarding the method claims of 13-18, Payne illustrates in at least example 21 the treatment of non-cellulosic blended fabric with a treatment solution of 0.1% poly(hexamethylene biguanide), 0.5% aqueous solution of oxalic acid and 0.2% solution of a glycoluril resin containing an acid catalyst with the subsequent steps of drying and curing/baking for 10 minutes at 140 degrees C to cure the resin. Examiner acknowledges that the prior art teaching of Payne does not specifically teach a curing state carried out in the time range of 30 seconds to 5 minutes. However, Payne illustrates 10 minutes of curing which teaching along with the common knowledge that there is an inverse relationship with the temperature and time needed to cure, apprises one of ordinary skill to modify the curing time range and curing temperature as claimed.

Payne does not teach an aqueous composition comprising a self-crosslinkable resin and poly(hexamethylene biguanide) and a strong organic acid as recited by the instant claims. However, one of ordinary skill can envisage a composition comprising all 3 components since Payne illustrates two aqueous compositions, namely formulation

14 in table 1, col. 7 comprising poly(hexamethylene biguanide) and a strong organic acid such as oxalic acid. And formulation P, col.10, table 6, comprising melamine and poly(hexamethylene biguanide). North teaches one of ordinary skill to reduce yellowing and increase whiteness of fabrics with 2 to 40% by weight of the DMDHEU. See col.2,ln.30-40. It would have been obvious to one of ordinary skill in the art, at the time the invention was made to arrive at an aqueous composition comprising a self-crosslinkable resin and poly(hexamethylene biguanide) and a strong organic acid as recited by the instant claims, because Payne in combination with North motivate one of ordinary skill to include all 3 components in a composition to achieve optimum fabric whitening. One of ordinary skill in the art would have been motivated to combine Payne with North since both references teach the analogous art of textile resins that prevent yellowing of the treated fabric.

Payne does not teach the claimed 2 to 20 wt% of at least a self-crosslinkable resin, however, Payne teaches the utility of phenolformaldehyde or urea-glyoxal resins commonly known in the art to provide crease resistance. See col.6,ln.5 and table 6, col.10 where the prior art teaches 1% melamine resins. North teaches 2 to 40% by weight of the DMDHEU to reduce the free formaldehyde in the treated fabric. See col.2,ln.30-35 and 47. It would have been obvious, to one of ordinary skill in the art, to arrive at the claimed 2-20% self crosslinkable resin since the Payne exemplifies 1% melamine resins in general and North teaches the beneficial utility of greater than 2% resins to significantly reduce or eliminate free formaldehydes while providing a non-yellowing treated fabric.

Payne does not specifically teach the claimed acid value or moisture regain of  $\leq 5\%$ . However, it is reasonable to presume said limitations are met by the teachings of the prior art since the reference teaches the analogous oxalic acid with the analogous poly(hexamethylene biguanide) antimicrobial catalyst. The same components being claimed are taught by the prior art in the same ratios and thus can reasonably be expected to have the same acid value and moisture regain of  $\leq 5\%$ .

Payne does not specifically teach the claimed 75 to 97 wt% of water as recited by the instant independent claims. However, in example 21, Payne teaches an antimicrobial composition comprising 0.1% aqueous solution of poly(hexamethylene biguanide), 0.5% aqueous solution of oxalic acid and 0.2% solution of a glycoluril resin containing an acid catalyst. It would have been obvious, to one of ordinary skill in the art, to arrive at the claimed 75 to 97 % water since the prior art teaches immersion of textile in dilute aqueous solutions of the acid, catalyst, and resin composition. See ex.21.

Payne does not specifically teach claim 8, a self-crosslinkable resin selected from DMDHEU and DHDMEU both of which have the same CAS # 1854-26-8. North teaches treating textile fabrics with DMDHEU/polyol and organic acid catalyst to reduce or eliminate free formaldehyde in the resin while providing a non yellowing treated fabric. See abstract and col.2,ln.40. It would have been obvious to one of ordinary skill in the art, to modify the teachings of Payne with the DMDHEU resin as taught by North since the primary reference teaches using a urea resin in general and North teaches the specific utility of DMDHEU in the analogous art of treating textile fabrics.

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREETI KUMAR whose telephone number is (571)272-1320. The examiner can normally be reached on 10:30 am-2:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. K./  
Examiner, Art Unit 1796

/Gregory R. Del Cotto/  
Primary Examiner, Art Unit 1796